

AKI comprised among others non-transfemoral access, anemia, high EURO Score and the absence of an increase in cardiac output (CO) after TAVI (AKI vs. non-AKI Δ CO: $0.2 \pm 8.6\%$ vs. $7.2 \pm 26.5\%$, $p < 0.0001$).

Conclusions: Preprocedural renal dysfunction has a prominent impact on mortality after TAVI. In addition, the occurrence of AKI after TAVI carries an even worse prognosis. In this regard, the maintenance of a sufficient blood pressure and an increase of cardiac output after TAVI seem to be protective against renal impairment.

TCT-759

Early Detection of Acute Kidney Injury Post Transcatheter Aortic Valve Replacement By a Novel Renal Biomarker

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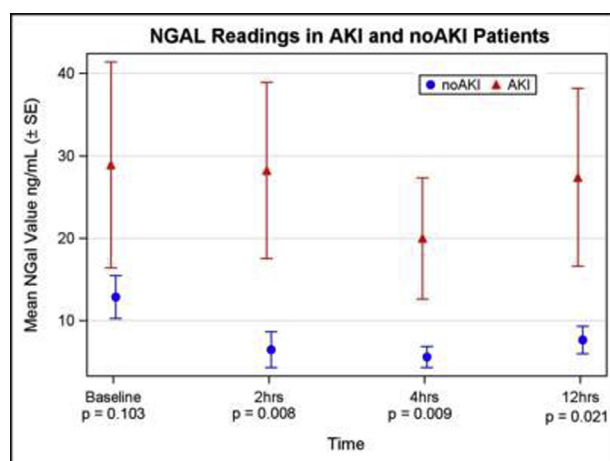
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Background: Neutrophil gelatinase-associated lipocalin (NGAL) is a novel biomarker associated with acute kidney injury (AKI) after cardiac procedures. NGAL allows earlier detection of AKI than serum creatinine (SCr) level but has not been evaluated post transcatheter aortic valve replacement (TAVR).

Methods: From 6/2012-5/2013, we enrolled 66 patients undergoing TAVR in this single-center pilot study. Urinary NGAL was measured at baseline, 2, 4, and 12 hours post op. Demographic, procedural features, and SCr until discharge were measured. The trend of NGAL post TAVR and the association of increased NGAL with AKI as per VARC-2 criteria was assessed.

Results: Twenty-two patients (33.3%) developed AKI postoperatively (Stage 1, 63.6%; Stage 2, 22.7%; Stage 3, 13.6%). There was no significant difference in baseline SCr, eGFR, or contrast dye volume between patients who developed AKI and those who did not but AKI patients had a significantly smaller aortic valve area. There was a significantly higher level of NGAL in patients with AKI versus those without AKI seen at 2, 4 and 12 hours post procedure (Figure), with the peak at 2 hours. After adjusting for gender, age, diabetes, TAVR type, and BMI, NGAL was significantly predictive of AKI at baseline (OR = 1.019 (95% CI 1.001 – 1.037, $p=0.034$) and at each post op measurement.

Conclusions: NGAL was significantly elevated in patients who develop AKI both pre TAVR and post TAVR as early as 2 hours post procedure in this pilot study. This biomarker may assist in better determining patients at risk for and earlier detection and management of this frequent complication.



TCT-760

Treatment of Acquired von Willebrand Syndrome in Aortic Stenosis with Transcatheter Aortic Valve Replacement (TAVR)

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Background: An association between the acquired von Willebrand syndrome (aVWS) and valvular aortic stenosis (AVS) has been demonstrated in the past. While the extend of von Willebrand factor (aVWF) deficiency is related to the severity of AVS, surgical valve replacement (SAVR) can lead to factor recovery. Prevalence and course of the aVWS in patients treated with TAVR though has not yet been described comprehensively. Thus, we investigated the prevalence of the aVWS in patients undergoing TAVR and the impact on the underlying factor variances.

Methods: 104 consecutive patients (age: 81.0 ± 13.0 years; logEUROscore $22.9 \pm 18.5\%$) underwent TAVR at our institution. Comprehensive hemostaseologic testing was performed prior to and up to one week after TAVR. Transvalvular hemodynamics and right heart catheterisation as well as bleeding episodes were recorded and analyzed with descriptive statistics.

Results: Baseline prevalence of an aVWS was 41% with an average densitometric high-molecular-weight multimer (HMW-MM) count of $16.6 \pm 3.5\%$. Pressure gradients correlated significantly with the extent of high-molecular-weight multimer (HMW-MM) deficiency ($r = -0.63$ [$P < 0.0001$]). While in the past it has been shown to be vice-versa for SAVR, the necessity of blood transfusions was higher in our control-group 1. Following valve implantation, HMW-MM increased proportional to the drop in mean pressure gradient and normalized within a week in 97% of the patients with prior aVWS.

Conclusions: We describe a significant prevalence of aVWS in patients undergoing TAVR. Since severe factor deficiency can lead to significant bleeding during SAVR, TAVR should be taken into consideration as a first line treatment for patients with AVS and concomitant aVWS.

TCT-761

Balloon-Expandable Transcatheter Aortic Valves Can Be Effectively And Safely Implanted Transfemorally Without Balloon Valvuloplasty

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Background: Balloon aortic valvuloplasty (BAV) has traditionally been part of the transcatheter aortic valve implantation (TAVI) procedure using balloon expandable valves. However, the benefit of this is unknown. We aimed to evaluate procedural success and safety in patients who underwent TAVI with and without BAV.

Methods: We retrospectively evaluated all TAVIs performed for predominant aortic stenosis using the balloon-expandable Edwards Sapien XT and Sapien 3 devices from March 2012 to April 2014. BAV was routinely performed only until May 2013. We assessed Valve Academic Research Consortium (VARC)-2 defined device success and safety; differences in procedure and fluoroscopy times and differences in embolic load based on transcranial Doppler (TCD). Categorical variables were analyzed using the Fisher exact test and continuous variables by the unpaired T-test on SPSS v21.

Results: 61 patients underwent BAV (Group 1) and 52 patients had no BAV (Group 2). There was no difference ($p > 0.05$) in the rate of device success, specifically successful valve deployment (98.3% in Group 1 and 96.1% in Group 2), rate of post-deployment balloon dilatation (3.4% in Group 1 and 4.0% in Group 2) or incidence of moderate or severe aortic regurgitation (4.9% in Group 1 and 5.8% in Group 2). There were no differences in procedure safety (50.8% VARC-2 defined major and minor complications in Group 1 and 34.6% in Group 2, $p=0.15$). In one case there was difficulty in crossing the valve without BAV, partial inflation of the distal balloon tip within the TAVI valve enabled crossing of the native aortic valve without subsequent deployment problems. There was a reduction in total fluoroscopic time in Group 2 vs Group 1 (13.2 vs 17.3 mins, $p=0.006$), but no significant difference in total procedure time (112 vs 119 mins, $p=0.21$). There were no differences between the 2 groups in terms of number of solid, gaseous or total emboli on TCD (all $p > 0.05$).

Conclusions: Balloon-expandable TAVI valves can be implanted transfemorally without BAV, without a reduction in VARC-2 defined success or safety. Without performing a BAV there is a significant reduction in the fluoroscopic time. There is no difference in the rate of embolization on TCD.

TCT-762

Transcatheter Aortic Valve Implantation: A Single Center Comparison between Medtronic CoreValve and Edward SAPIEN Bioprostheses

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Background: Transcatheter aortic valve implantation (TAVI) is the new standard of care for inoperable patients with severe aortic stenosis and an alternative to surgical